The table below identifies the global learning objectives they relate to the six ACGME core competencies.

GLOBAL LEARNING OBJECTIVES LINKED TO ACGME CORE COMPETENCIES	
ACGME CORE COMPETENCY	**GLOBAL LEARNING OBJECTIVES**
A. Patient Care Subspecialty fellows are expected to provide patient care that is compassionate, appropriate, and effective for the promotion of health, prevention of illness, treatment of disease, and care at the end of life.	1) Fellows must be able to gather accurate, essential information from all sources, including medical interviews, physical examinations, medical records, and diagnostic/therapeutic procedures. 2) Fellow must be able to make informed recommendations about preventative, diagnostic, and therapeutic options and interventions that are based upon sound clinical judgment, scientific evidence, and patient preference. 3) Fellow must develop, negotiate, and implement effective patient management plans and integrate patient care. 4) Fellow must be able to perform the diagnostic and therapeutic procedures considered essential to the practice of Subspecialty with competency.
B. Medical Knowledge Subspecialty fellows are expected to demonstrate knowledge of established and evolving biomedical and clinical sciences, and the application of their knowledge to patient care and the education of others.	1) Fellow must apply an open-minded, analytical approach to acquisition of new knowledge. 2) Fellow must access and critically evaluate current medical information and scientific evidence, including evidence-based practice guidelines pertaining to Subspecialty. 3) Fellow must be able to develop a clinically applicable knowledge of the basic and clinical sciences that underlie the practice of Subspecialty. 4) Fellow must be able to apply this knowledge to clinical problem solving, clinical decision-making, and critical thinking.
C. Practice-Based Learning and Improvement Subspecialty fellows are expected to be able to use scientific evidence and methods to investigate, evaluate, and improve patient care practices.	1) Fellow must be able to identify areas for improvement and implement strategies to enhance knowledge, skills, attitudes, and processes of care. 2) Fellow must be able to analyze and evaluate practice experiences and implement strategies to continually improve the quality of patient practice. 3) Fellow must be able to develop and maintain a willingness to learn from experience to improve the system or processes of care. 4) Fellow must be able to use information technology or other available methodologies

	to access and manage information, support patient care decisions, and enhance both patient and physician education. 5) Fellow must be able to gain information and experience from ongoing educational conferences, e.g., multidisciplinary patient conferences and journal clubs.
D. Interpersonal and Communication Skills Subspecialty fellows are expected to demonstrate interpersonal and communication skills that enable them to establish and maintain professional relationships with patients, families, and other members of the health care team.	1) Fellow must be able to provide effective and professional consultation to other physicians and health care professionals, and sustain therapeutic and ethically sound professional relationships with patients, their families, and colleagues. 2) Fellow must be able to use effective listening, nonverbal, questioning, and narrative skills to communicate with patients and families. 3) Fellow must be able to interact with consultants in a respectful, appropriate manner. 4) Fellow must be able to maintain comprehensive, timely, and legible medical records.
E. Professionalism Subspecialty fellows are expected to demonstrate behaviors that reflect a commitment to continuous professional development, ethical practice methods, an understanding and sensitivity to diversity, and a responsible attitude toward their patients, their profession, and society.	1) Fellow must be able to demonstrate respect, compassion, integrity, and altruism in relationships with patients, families, and colleagues. 2) Fellow must be able to demonstrate sensitivity and responsiveness to the gender, age, culture, religion, sexual preference, socioeconomic status, beliefs, behaviors and disabilities of patients and professional colleagues. 3) Fellow must be able to adhere to principles of confidentiality, scientific/academic integrity, and informed consent. 4) Fellow must be able to recognize and identify deficiencies in peer performance.
F. Systems-Based Practice Subspecialty fellows are expected to demonstrate both an understanding of the contexts and systems in which subspecialty care is provided, and the ability to apply this knowledge to improve and optimize patient care.	1) Fellow must be able to understand, access, and utilize the resources, providers, and systems necessary to provide optimal care. 2) Fellow must be able to understand the limitations and opportunities inherent in various practice types and delivery systems, and develop strategies to optimize care for the individual patient. 3) Fellow must be able to apply evidence-based, cost-conscious strategies to prevention, diagnosis, and disease management. 4) Fellow must be able to collaborate with other members of the health care team to assist patients in dealing effectively with complex systems and to improve systemic processes of care.

Goals and Objectives

Using the template provided below, identify and describe <u>all rotations</u> in which fellows participate. **THE ACGME COMPETENCY/GLOBAL LEARNING OBJECTIVES, A SAMPLE COMPLETED TABLE, AND ADDITIONAL REFERENCE MATERIALS** are provided in the attached PDF.

For **EACH** rotation:
1) name the rotation,
2) describe the rotation (block vs. longitudinal, description of activities, etc.),
3) list the specific learning objectives (see the Goals and Objectives Example in the attached PDF for a sample table),
4) link each specific learning objective to corresponding ACGME competency/global learning objective(s) using the numbers from the global objectives table provided in the attached PDF (e.g., A.1. for the first objective in the patient care core competency),
5) identify the objective type(s) (knowledge, skills, and attitudes, and behaviors)*,
6) identify the assessment type(s) (formative or summative)*, and
7) identify the assessment method(s) (multiple choice questions, test, essay, oral exam, NEX, etc.)*.

*For assistance in writing objectives and determining the objective type(s) and assessment type(s) and method(s), reference the *Guide to Writing Goals & Learning Objectives Linked to Assessments: Curricular Alignment,* which is provided in the attached PDF.

COPY and paste the following FOR EACH PROGRAM ROTATION.

Rotation Name: Outpatient Clinic
Rotation Description: Longitudinal; majority of fellow's time spent in an outpatient environment evaluating various ophthalmic complaints and interacting with patients and their families

Specific Learning Objectives *By the conclusion of the program, the fellow must:*	*ACGME Competency*	*Objective Type(s)*	*Assessment*	
			Type(s)	*Method(s)*
1. Manage an adequate number of outpatients representing a broad range of ophthalmic diseases.	A1, A3, B4, D1	K, S, AB	F, S	End of rotation global assessment; Chart Review; Self-Assessment; Patient 360
2. Perform a complete ophthalmic examination.	A1, A3, B3, B4			
3. Identify ocular disease and trauma, including, but not limited to, cataract, strabismus, cornea, glaucoma, retina/vitreous, and oculoplastic.	A4, B1, B2, B3, B4			

Specific Learning Objectives	ACGME Competency	Assessment		

4. Demonstrate proficiency in completion of at least 36 hours of experience in gross and microscopic examination of pathological specimens.	A4, B3, B4, C5			Degree Evaluations
5. Demonstrate documented experience in practice management, ethics, advocacy, visual rehabilitation, and socio-economics.	A3, C1, C2, C3, D1, E1, E2, E3, F1			
6. Identify areas of improvement in the care of outpatients.	C1, C2, C3			
7. Demonstrate proficiency interacting with patients, caregivers, families, and members of an interdisciplinary care team.	A1, A3, C4, D1, D2, D3, E1, E2, E3, F4			
8. Employ compassion, integrity, and respect for others.	A1, D1, D2, D3, E1, E2, E3			
9. Recognize respect for patient privacy and autonomy.	A1, C4, D1, E1, E2, E3			
10. Employ considerations of cost awareness and risk-benefit analysis in patient and/or population-based care as appropriate.	A2, A4, B4, C1, C2, C3, C4, D1, F1, F2, F3			

Rotation Name: Surgical
Rotation Description: Two-month block rotation

Specific Learning Objectives *By the conclusion of the program, the fellow must:*	*ACGME Competency*	*Objective Type(s)*	Assessment	
			Type(s)	*Method(s)*
1. Demonstrate knowledge of how to properly care for the surgical patient.	A1, A3, A4, B1, B3, B4	K, S, AB	F, S	End of rotation global assessment; Direct Observation; Case logs; Oral exam
2. List indications for surgery.	A4, B2, B3, B4			
3. Compare surgical risks and benefits.	A2, A4, B1, B2, B3, B4, C4			
4. Employ informed consent.	A2, C4, D1, E1, E2, E3			

5. Perform intraoperative skills.	A4, B2, B3, B4			
6. Describe local and general anesthetic considerations.	A3, A4, B3			
7. Manage acute and longer-term postoperative care.	A3, A4, B2, B3, B4, C4, D1			
8. Manage systemic and ocular complications that may be associated with surgery and anesthesia.	A2, A3, A4, B3, B4			
9. Demonstrate proficiency in patient care responsibilities in the surgery (including laser surgery) of cataract, strabismus, cornea, glaucoma, retina/vitreous, oculoplastic, and trauma.	A2, A3, A4, B2, B3, B4, C4, F2			
10. Demonstrate proficiency interacting with patients, caregivers, families, and members of an interdisciplinary care team.	A2, A3, B2, C4, D1, D2, D3, E1, E2, E3, E4, F1, F4			
11. Implement coordination of patient care within the health care system relevant to ophthalmology.	A1, A3, B4, C1, C2, C3, D1, D3, D4, E1, E2, E3, F2, F3, F4			

GUIDE TO WRITING GOALS & OBJECTIVES LINKED TO ASSESSMENTS: CURRICULAR ALIGNMENT

UCNS ACCREDITATION COUNCIL
May 2011

INTRODUCTION

Competency-Based Education. At the end of a designated period of training in a subspecialty area, a fellow should be competent to practice that subspecialty. In order to assess the efficacy of training, a fellow must demonstrate competence at the end of the training period. In order to ensure that the training is effective, however, a fellow must also demonstrate competence in designated areas during the training period to allow for feedback (formative assessment), opportunity for improvement, and demonstration of competence after reassessment. The implementation of "*outcome-based" or "competency-based"* education requires more effort by the fellowship director than does implementation of traditional educational methods, but, if done well, has the potential to ensure success for both the curriculum and the trainee.

Curricular Alignment—Define, Delineate, & Determine. The cornerstone of a competency-based curriculum is *curricular alignment* in which learning objectives, learning experience, and assessments are all aligned. In order for the alignment to occur seamlessly, *first* create learning objectives that are meaningful, comprehensive, and measurable (define the target). Next, devise a standardized learning experience consistent with the objectives (delineate the path). Finally, create assessment tools that are consistent with the objectives and learning experience (determine the outcome). Curricular alignment is the clearest path to establishing learner competency.

Curricular Alignment: Develop a Curriculum in This Order:
1. Objectives (define the target)
2. Learning (delineate the path)
3. Assessments (determine the outcome)

Common Mistakes in Developing a Curriculum. Three common mistakes in developing a curriculum are: (1) starting with the learning experience (e.g., lecture schedule)—rather than learning objectives, (2) basing the learning experience on workplace needs or faculty knowledge and availability rather than learning objectives, and (3) writing learning objectives that are not assessable either because of the way they are written or because they are not feasible.

OBJECTIVES

Objective Types (KSAB). The main types of learning objectives are:
1. Cognitive objectives (knowledge),
2. Psychomotor objectives (skills), and
3. Affective objectives (attitudes and behaviors).

Keys to Writing Learning Objectives. Write learning objectives with the corresponding assessments in mind. Make the learning objectives measurable and use appropriate verbs. One can assess learner actions, but not learner thoughts. Thus, avoid non-action verbs such as "know" or "understand" and only use action verbs when writing learning objectives. The specific verbs should vary based on the objective or competency type, i.e., exactly what it is you wish for the learner to demonstrate. The following is an incomplete list of action verbs appropriate for different objective types—there are many more acceptable action verbs one may use.

OBJECTIVE TYPE	EXAMPLES OF ACCEPTABLE ACTION VERBS
Knowledge	compare, describe, distinguish, explain, identify, list, name, state, verbalize
Skills	Assess, demonstrate, describe, detect, employ, evaluate, formulate, interpret, manage, perform, recognize, plan, prescribe, summarize, use
Attitudes & Behaviors	demonstrate, employ, implement, interpret, perform, use

In addition, write objectives from the perspective of the learner, not the instructor. An example of an objective written from the learner perspective is "Demonstrate and interpret key findings on a patient with amyotrophic lateral sclerosis." An example of an objective written from the instructor perspective is "Provide exposure to patients with amyotrophic lateral sclerosis."

Objective Characteristics. Learning objectives in a medical curriculum should be:
1. Comprehensive (various objectives should cover knowledge, skills, attitudes, and behaviors);
2. Pertinent (learner-population specific; for example, at the fellow level, one must include assessment of real-world technical proficiency and clinical judgment in relation to skill performance);
3. Assessable (practical, written using appropriate verbs, and linked to methods of assessment appropriate to the type of objective);
4. Extramurally consistent (based on consensus guidelines or statements such as UCNS program guides);
5. Intramurally consistent (based on consensus among various faculty members within the institution);
6. Integrated (defined <u>before</u> developing the curriculum);
7. Uniformly taught (part of a standardized curriculum for all fellows); and
8. Linked to the six ACGME competencies designed for residency programs in the ACGME Outcome Project (patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice.)

ASSESSMENT

Assessment Drives Learning. Full acceptance of this fact by the educator greatly facilitates the development and implementation of a competency-based curriculum. It is actually preferable to teach to the test—as long as the test is pertinent, valid, reliable, and feasible (see "Assessment Features" below). Once one is committed to the concept of outcome-based education, it is apparent that the traditional system of assessing learners solely via observing clinical performance and administering a written multiple-choice final exam is inadequate to demonstrate minimal competence in all the learning objectives.

Assessment Strategies Linked to Objectives. Both the learning environment and assessment strategies must vary in accordance with the type of objective and learner population. Computer-based tests enable the combination of board-style, case-based, multiple-choice questions with multimedia skills assessments. Essays or oral exams can be effective in assessing communication skills. Simulation using objective structured clinical examinations (OSCEs), standardized patients (SPs—real or simulated), or simulators is ideal for the assessment of certain clinical skills and even critical thinking. One type of OSCE, the NEX, consists of an observed, structured, focused neurologic assessment of a real patient using an oral board format—a faculty member observes the fellow perform a history and physical examination and counsel the patient, then asks the fellow his or her impression and plan.

Assessment Strategies Linked to Level of Competence. Miller's pyramid of competence outlines four successive levels of competence: knows, knows how, shows how, does. Different assessment strategies are required for different levels of competence:
1. Knows   →   Factual tests (e.g., multiple-choice questions, essay, oral)
2. Knows How   →   Clinical context-based tests (e.g., multiple-choice questions, essay, oral)
3. Shows How   →   Performance assessment in vitro (e.g., OSCE, SP-based test)
4. Does   →   Performance assessment in vivo (e.g., NEX, undercover SPs, video, logs)

Assessment Features. The three main features of an effective assessment tool are validity, reliability, and feasibility. Validity refers to the appropriateness of the assessment instrument. Are you measuring what you intend to measure? Reliability refers to the consistency of the assessment tool. Does one obtain the same results upon repeated use of an assessment tool? In written examinations, is fellow performance similar year to year? For skills assessments, does the same examiner score consistently (intrarater reliability) and do different examiners score in a similar fashion (interrater reliability)? Feasibility refers to practicality. Is it possible to implement this assessment instrument? Is it realistic to expect that busy attendings will witness a complete neurologic assessment and provide feedback for every learner while concurrently providing patient care? Is it realistic to use an expensive high-fidelity simulator for skills training when there is no money in the budget?

Assessment Types—Formative & Summative. *Formative assessments* consist of feedback without grading. They provide the learner and instructor with interim progress reports and the opportunity to modify learning strategies or the curriculum in order to ensure the learner is on track to become competent by the end of the curriculum. Feedback is essential to the acquisition of clinical skills; experience alone does not suffice. The most effective curricula integrate formative-assessment opportunities throughout the curriculum.

Summative assessments consist of graded evaluations. A big difference between traditional and outcome-based curricula is the approach to summative assessment, or grading. In traditional curricula, grading is norm referenced—one expects learner test results to occur in a normal distribution. This is largely a reflection of the teaching philosophy employed in the curriculum. Without clear-cut learning objectives, learners must guess what is important for the test, resulting in the normal distribution. In outcome-based curricula with curricular alignment, the course director sets clear learning objectives with appropriate standards of minimal competence (criteria) and an expectation that every learner that completes the fellowship will meet the established standards. In this mastery-teaching philosophy, grading is *criterion referenced*, not norm referenced. This grading philosophy is more appropriate at the fellowship level and is used by board-certification agencies such as the UCNS.

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